

Listing and Amendments to the Claims

This listing of claims will replace the claims that were published in the PCT Application and the International Preliminary Examination Report:

1 – (currently amended) A Method of producing a photonic bandgap (PBG) filtering structure on a microwave device, formed by a slot produced on a first metallized face of a substrate, characterized in that it consists the method consisting in forming periodic metal patterns (4, 4a, 4b, 4c, 4d, 5a, 5b, 11a, 22, 32) on the on a second face of the substrate opposite side of the substrate from that receiving the face receiving the slot and said patterns facing the slot.

Claims 2 and 3 are cancelled.

4 – (currently amended) Method according to Claim 3, ~~characterized in that 1, wherein the periodic patterns of are produced with different shape but of the with same equivalent area are produced.~~

5 – (currently amended) Method according to ~~one of Claims 1 to 4, characterized in that~~ Claim 1, wherein the patterns are produced by etching a metal layer deposited on the ~~opposite side~~ second face of the substrate ~~from that receiving the slot.~~

6 – (currently amended) Method according to Claim 1, ~~characterized in that wherein the~~ patterns are produced in a PBG structure in which the equivalent area of a pattern can be modified from one pattern to another, with a constant spacing between patterns.

7 – (currently amended) Method according to Claim 1, ~~characterized in that wherein the~~ patterns are produced in a PBG structure, in which the equivalent area remains constant but the spacing between each pattern can vary.

Claims 8 and 9 are cancelled.

10 – (currently amended) Microwave antenna consisting of a closed slot produced on a first metallized face of a substrate, the slot being fed via a feed line and operating at a given frequency, ~~characterized in that it includes a bandgap structure (22) produced according to one of Claims 1 to 9 (PBG) consisting of periodic metal patterns produced on a second face of the substrate opposite the first face, said patterns facing the slot and determining a bandgap frequency.~~

11 – (currently amended) Microwave antenna according to Claim 10, ~~characterized in that~~ wherein the periodicity of the patterns of the PBG structure is chosen so that the bandgap frequency is equal to one of the harmonics of the operating frequency of the closed slot.

12 – (currently amended) Microwave antenna according to Claim 10, ~~characterized in that~~ wherein the periodicity of the patterns of the PBG structure is chosen so that the bandgap frequency is greater than the operating frequency of the closed slot.

13 – (currently amended) Microwave antenna ~~Antenna~~ according to ~~any one of Claims 10 to 12~~, characterized in that Claim 10, wherein the closed slot is an annular slot.

14 – (currently amended) Microwave antenna ~~Antenna~~ according to ~~any one of Claims 10 to 13~~, characterized in that Claim 10, wherein the slot is fed through a slot-line transition via a feed line produced in microstrip technology.

15 – (currently amended) Antenna according to Claim 14, ~~characterized in that~~ wherein an additional photonic bandgap structure is produced beneath the feed line in microstrip technology line ~~by demetallizing the opposite side~~ face of the substrate ~~from opposite~~ that receiving the feed line.

16 – (currently amended) A Vivaldi microwave antenna, characterized in that it includes a formed by a tapered slot including a photonic bandgap structure (32) produced according to any one of Claims 1 to 9 (PBG) consisting of periodic metal patterns produced on a second face of the substrate opposite the first face, said patterns facing the slot and determining a bandgap frequency.

17 – (currently amended) Antenna according to Claim 16, ~~characterized in that a~~ wherein the photonic bandgap structure is produced along at least one of the profiles of the tapered slot constituting the Vivaldi antenna.

18 – (currently amended) Antenna according to ~~either of Claims 16 and 17,~~ Claim 16, wherein the Vivaldi antenna is fed at through a slot-line transition via a feed line produced in microstrip technology.

19 – (currently amended) Antenna according to Claim 18, ~~characterized in that a~~ wherein an additional photonic bandgap structure is produced beneath the microstrip feed line by demetallizing of the side face of the substrate opposite that receiving the line.

20. - (new) A photonic bandgap (PBG) filtering structure on a microwave device formed by a slot produced on a first metallized face of a substrate comprising periodic metal patterns on a second face of the substrate opposite the first face receiving the slot, said patterns facing the slot and determining a bandgap frequency.

21. (new) Structure according to claim 20, wherein the periodicity between two patterns is equal to $\lambda_g/2$ where λ_g is the wavelength of the wave guided in the slot at the chosen bandgap frequency and k is an integer.

22. (new) Structure according to claim 20, wherein the bandgap frequency has a width and a depth depending on the equivalent area of the periodic patterns.

23. (new) Structure according to claim 20, wherein the patterns are formed from discs, squares, rings or H shaped elements.